



June 21, 2010

Kelly Griffith, Project Manager  
Max J. Kuney Company  
PO Box 4008  
Spokane, WA 99202

Serial Letter # 32

Re: I-90 Hyak to Snowshed Vicinity Phase 1B Add Lanes and Bridges  
WSDOT Contract #7852, KLB #210845

Subj: Charley Murphy as Blasting Consultant

Dear Mr. Griffith,

KLB Construction proposes to use Charles Murphy as the Blasting Consultant on the I-90 Hyak to Snowshed phase 1B project. Mr. Murphy is extremely well qualified for this work and will be on site for all blasting operations throughout the course of the project. Please see the attached resume and details of similar Interstate projects.

Please forward to WSDOT for their review.

Sincerely,

A handwritten signature in blue ink, appearing to read "Aiesh Ragih".

For:

Aiesh Ragih, Project Manager  
KLB Construction, Inc.

P.O. BOX 158  
MUKILTEO, WA 98275  
(425) 355-7335  
FAX (425) 348-8455

KLBCOI\*153B8

AN EQUAL OPPORTUNITY EMPLOYER

# Charles Murphy

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**Education**                      1957 to 1962                      Georgia Institute of Technology                      Atlanta, GA  
**Bachelor of Mechanical Engineering**

1967                      Florida State University                      Fort Walton Beach, FL  
**Graduate Studies in Business Administration**

**Accreditations**                      Licensed Blaster in Washington (Currently), Nevada, California, Arizona, Wyoming,  
Tennessee, Alabama and Florida.

**Work experience**                      2005 – 2007                      Murphy's Project Management                      St. George, UT  
**Drilling and Blasting Consultant**

- Direct Supervision of up to 25 personnel daily performing blasting operations in Southern Nevada and Western States
- Provided detailed blast designs for all critical locations and personnel on-site supervision for especially sensitive locations

**Significant and Relevant Projects**

- Las Vegas City Center Project on Interstate 15 – This foundation project was conducted in the most restrictive environment imaginable.
- Highway 93 Approach to Hoover Dam – Extremely sensitive environmental and safety issues regarding blast designs directly above discharge structures and underneath critical power lines.
- US 26/287 Widening between Moran Junction and Dubois, Wyoming – Project consisted of two major cuts, 100' to 150' high adjacent to major tourist route requiring very careful control of fly rock and precise presplit blasting in deteriorating slope
- Western Gypsum Mine, Blackrock, AZ – Surface Blasting of up to 1,000,000 Cubic Yards per month.
- Bagdad Copper Company, Bagdad, AZ – Removal of 100' of overburden for pit expansion.
- Interstate 15 Widening and Re-Alignment, Sloan, NV – 50' Cuts adjacent to North and Southbound traffic on I-15 for Highway Construction.

2002 – 2005                      Sanders Construction                      Henderson, NV  
**Drilling and Blasting Superintendent**

- Provided direct supervision, detailed blast plans and hands on shot service

2000 - 2002                      Austin Powder Company                      Las Vegas, NV  
**Senior technical Representative**

- Provided Direct Supervision, detailed blast plans and hands on shot service

1996 - 2000                      Hermitage Explosives Co.                      Nashville, TN

**Operations Manager**

- Review and Approve blast plans for quarry blasting, general construction, Heavy Highway Construction, underground and surface mining.
- Supervised Staff of 8 blasting crews consisting of up to 22 explosive technicians

1968 - 1996                      Dyno Nobel Inc.                      Salt Lake City, UT

**Senior Field Technical Representative (1991 - 1996)**

- Provided Technical Support to ten Explosive Distributors East of the Mississippi. Including product support, blast designs and on-site supervision.

**Managing Director of Defense Systems Division (1983 - 1991)**

- Managed marketing of explosives for Military Applications. Provided Field Technical support for simulation blasting and barrier creations.

**International Technical Representative (1971 - 1983)**

- Provided Technical Support for Explosive Manufacturing Facility Construction for ICI Chemical (England), African Explosives and Chemical Industry (South Africa), Norsk Spramgstoff (Norway), LKAB (Sweden), Numerous Companies in Japan.
- Provided Manufacturing training during factory start up at each location.
- Provided training and field supervision for introduction of new explosive technologies at each location.
- Provided technical and marketing support throughout 26 countries in Europe, Asia, Africa, India, Australia, North and South America.

**Field Research Station Manager (1968 - 1971)**

- Manufactured and Field tested experimental explosives to determine physical and detonation properties, creating the next generation of explosives.
- Developed new explosive manufacturing equipment for production of new explosive formulations.

1962-1968                      US Department of Defense                      Fort Douglas, UT

**US Department of Defense Civil Service (1965 - 1968)**

- Environmental Field testing of experimental explosives and chemicals
- Classified Munitions and Chemical Testing

**US Army Commissioned Officer (1962 - 1965)**

- Environmental Field testing of experimental explosives and chemicals
- Classified Munitions and Chemical Testing

**Professional  
memberships**

ISEE - International Society of Explosive Engineers

1990 - 2000



## RELEVANT PROJECTS

The following projects were performed under Charley Murphy's supervision while he worked as a drilling and blasting consultant for Murphy's Project Management from 2005 to 2007. The personal reference for this work is Danny Brady, General Superintendent for Sanders Construction Company, (702) 354-9615.

### **City Center Foundation Excavation**

#### **Owner: MGM Grand**

This project is located directly West of Las Vegas Boulevard and adjacent to Interstate 15 Northbound. This 65 acre project required excavations up to 35 feet deep for high rise hotels, casinos, condos, shopping centers and Casinos.

This project was located within 25 feet of Interstate 15 and adjacent hotels. Vibration limits were set at 0.5 PPV to protect existing hotels, utilities and the interstate. Blast patterns were developed using 3" diameter boreholes 10 feet deep and on 8 foot spacing with 8 feet of burden. Blasts were timed so that only one borehole detonated per 8 ms with as many as 300 holes in a single pattern 80 feet wide by 300 feet long. ANFO primed with cap sensitive packaged emulsion was used as the main charge for all dry holes. Cap sensitive packaged emulsion was used for the charge in wet holes. Holes were stemmed 5 feet with ½" minus crushed stone. The project was completed on time without incident.

### **Highway 93 Approach to Hoover Dam**

#### **Owner: Arizona Department of Transportation**

This project is located in Arizona adjacent to the Colorado River 600 feet downstream of the Hoover Dam and extends approximately 2 miles East. Rock cuts of up to 300 feet high were drilled and blasted using control blasting techniques such as benching, presplit, cushion blasting and step drilling. Production blasting utilized boreholes up to 5 inches in diameter and 30 feet deep.

Detailed blast plans were prepared and submitted daily for approval prior to blasting. Access to the top of cut was particularly difficult and required winching drills up slopes on the higher cuts.

All work was conducted above active traffic lanes with traffic being stopped for blasting. The project was completed on time with out incident.

### **Widening US Highway 26/287 - Moran Junction**

#### **Owner: Wyoming Department of Transportation**

This project is located East of the entrance to Yellowstone National Park and included Rock Cuts up to 210 feet above and adjacent to Highway 26/287 . The cuts were brought down using 40 foot benches, 3" diameter holes, 7' x 7' patterns and 3" diameter presplit holes on 30 inch centers. The main charges were typically ANFO, presplit 7/8" diameter charges.

Approximately 250,000 cubic yards of material were blasted, the project was completed on time and without incident. See attached shot reports for typical shot details.

**Western Gypsum Mine, Blackrock, AZ**

**Owner: Western Gypsum Company**

Up to 1,000,000 cubic yards of overburden were removed per month using two DM45 Ingersoll downhole hammer drills producing 6-3/4" diameter boreholes 40 to 150 feet deep. Blast patterns were optimized using carefully monitored and documented test blasts. Fourteen feet of burden and 16 foot spacing was selected as the best performing design using ANFO and 10 feet of stemming in four row shots with up to 40,000 pounds of ANFO. The project was completed on time and with out incident.

**Interstate 15 Widening and Re-Alignment**

**Owner: Nevada Department of Transportation**

This project is located just South of Las Vegas, NV on I-15 and included laying shoulders on North and Southbound lanes back on approximately 1:1 slopes using step blasting designs because the rock was too soft and porous to stand up for pre-split.

All work was competed parallel to active traffic lanes with traffic being stopped only at midnight for blasting.

Detailed blast plans were proposed and submitted for each blast. Typical patterns used 3 inch diameter holes up to 30 feet deep on 7' x 7' spacing. Blasts were timed to minimize rock movement onto the interstate. The project was completed on time and without incident.



☐ Sanders Construction, Inc.

BLAST REPORT # 2007-0730

☒ Western States Drilling & Blasting, Inc.

DATE: 11-1-07

EXACT TIME OF SHOT: 2:15 pm

CUSTOMER: LeCombe Johnson

JOB NO.: 128-06-2

SHOT LOCATION WITH GPS COORDINATES: \_\_\_\_\_

TICKET NO.: 4648

CHECK LIST COMPLETED: ☒ YES ☐ NO

TYPE OF ROCK: Granite FACE HEIGHT: 30' FT. POUNDS PER DELAY: 155 per ft

TOTAL HOLES: \_\_\_\_\_

NUMBER OF HOLES: 19 Amalgam 1700 HOLE DIA: 3" BxS 5' x 5' STEMMING: 4' DEPTH: 10'

9 Production 27-10 HOLE DIA: 3" BxS 7' x 7' STEMMING: 6' DEPTH: 20-30'

NUMBER OF HOLES: 39 Amalgam 111045 HOLE DIA: 3" BxS 30' x 30' STEMMING: 12-16' DEPTH: 30'

POWDER FACTOR: 1.3 LBS. OF EXPLOSIVES: 1020 YARDS OF ROCK: 175/162

WEATHER: Clear 34° WIND: Calm

EXACT MONITOR LOCATION(GPS): \_\_\_\_\_ DIRECTION OF BLAST: \_\_\_\_\_ MONITOR TYPE: \_\_\_\_\_

MONITOR: L/R \_\_\_\_\_ T \_\_\_\_\_ V \_\_\_\_\_ PVS \_\_\_\_\_ Db \_\_\_\_\_ MONITOR SERIAL NO.: \_\_\_\_\_

DISTANCE TO BLAST: \_\_\_\_\_ AVERAGE POUNDS PER HOLE: \_\_\_\_\_ OPERATOR: \_\_\_\_\_

EXACT MONITOR LOCATION(GPS): \_\_\_\_\_ DIRECTION OF BLAST: \_\_\_\_\_ MONITOR TYPE: \_\_\_\_\_

MONITOR: L/R \_\_\_\_\_ T \_\_\_\_\_ V \_\_\_\_\_ PVS \_\_\_\_\_ Db \_\_\_\_\_ MONITOR SERIAL NO.: \_\_\_\_\_

DISTANCE TO BLAST: \_\_\_\_\_ AVERAGE POUNDS PER HOLE: \_\_\_\_\_ OPERATOR: \_\_\_\_\_

### EXPLOSIVES

DESCRIPTION	QUANTITY USED	DATE CODE	MAGAZINE	REMOVED	RETURNED
LOCATION:					
BULK A/N	Lbs				
BAG ANFO	<u>17</u> Bags	<u>13560702</u>		<u>36</u>	<u>19</u>
POWDER <u>2x16</u>	<u>6</u> ea.	<u>13560701</u>		<u>39</u>	<u>32</u>
POWDER <u>1/4x18</u>	<u>24</u> ea.	<u>070523</u>		<u>68</u>	<u>44</u>
lb. BOOSTER	ea.				
lb. BOOSTER	ea.				
<u>40</u> ft. <u>4x1.5</u>	<u>30</u> ea.	<u>09160704</u>		<u>45</u>	<u>15</u>
ft.	ea.				
ft.	ea.				
ft.	ea.				
ft.	ea.				
ft.	ea.				
<u>12</u> ft. <u>42</u> ms	<u>8</u> ea.	<u>21440704</u>		<u>47</u>	<u>34</u>
<u>7/8"</u> <u>Amalgam</u>	<u>880</u> ft.	<u>13500702</u>		<u>7.5</u> cs	<u>4.8</u> cs
GRAIN CORD	ft.				
GRAIN CORD	ft.				
MISCELLANEOUS					

COMMENTS:

All holes shot some large on edge where holes could  
not be drilled. 19 powder holes 39-49 per ft  
9 production

BLASTER'S SIGNATURE: [Signature]

LICENSE NO.: UN WS1092-07

Revised 03/04

ATTACH SKETCH OF SHOT

THIS FORM MUST BE FILLED OUT COMPLETELY

☐ Sanders Construction, Inc.

BLAST REPORT #

☐ Western States Drilling & Blasting, Inc.

DATE: 11-9-67

EXACT TIME OF SHOT: 2:23 PM

CUSTOMER: LeGrand Johnson

JOB NO.: 128.06-2

SHOT LOCATION WITH GPS COORDINATES:

TICKET NO.:

CHECK LIST COMPLETED: YES NO

TYPE OF ROCK: Breccia FACE HEIGHT: 40 FT. POUNDS PER DELAY: 4649

TOTAL HOLES:

NUMBER OF HOLES: 38 PROSPLIT 150 LF HOLE DIA: 3 B x S 30' CABLES STEMMING: 6' DEPTH: 40'

NUMBER OF HOLES: 36 PROSPLIT 120 LF HOLE DIA: 3 B x S 7' x 7' STEMMING: 5.5' DEPTH: 45'-10'

POWDER FACTOR: 190 LBS. OF EXPLOSIVES: 8170 YARDS OF ROCK: 2,203 125500 2072

WEATHER: Clear 38° WIND: 7-10 MPH West

EXACT MONITOR LOCATION(GPS): DIRECTION OF BLAST: MONITOR TYPE:

MONITOR: L/R T V PVS Db MONITOR SERIAL NO.:

DISTANCE TO BLAST: AVERAGE POUNDS PER HOLE: OPERATOR:

EXACT MONITOR LOCATION(GPS): DIRECTION OF BLAST: MONITOR TYPE:

MONITOR: L/R T V PVS Db MONITOR SERIAL NO.:


DISTANCE TO BLAST: AVERAGE POUNDS PER HOLE: OPERATOR:

### EXPLOSIVES

DESCRIPTION	QUANTITY USED	DATE CODE	MAGAZINE	REMOVED	RETURNED
LOCATION:					
BULK A/N	Lbs				
BAG ANFO	37 Bags	135607U1		40	3
POWDER	ea.				
POWDER 1 1/4 x 8	580	070523		100	98
lb. BOOSTER	ea.				
lb. BOOSTER	ea.				
50 ft. Modules	60	050407AU		70	10
ft.	ea.				
ft.	ea.				
ft.	ea.				
ft.	ea.				
ft.	ea.				
10 ft. 42 ms	3	010407BA		32	16
	ft.				
	ft.				
GRAIN CORD	ft.				
GRAIN CORD	ft.				
MISCELLANEOUS					

COMMENTS:

Good shot 38 Holes Prosplit 26 production +  
25 Holes Prosplit  
Shot Break left from high wall

BLASTER'S SIGNATURE: 

LICENSE NO.: WS 11/092-07

Revised 03/04

ATTACH SKETCH OF SHOT

THIS FORM MUST BE FILLED OUT COMPLETELY



## RELEVANT PROJECTS

The following projects were performed under Charley Murphy's supervision while he was employed as the Operations Manager of the Hermitage Explosives Company from 1996 to 2000. The personal reference for this project is John Lovisa, Vice President of Hermitage Explosives Co. (615) 226-2161.

### **Widening and Re-Alignment of Interstate 65**

#### **Owner: Tennessee Department of Transportation**

This project is located in North Nashville, TN approximately two miles North of downtown Nashville. The project consisted of blasting Northbound and Southbound shoulders for lane additions. No presplit was used during this project. Blastholes were 3 inches in diameter on 7' x 7' spacing with burden up to 15' deep. Main charges were designed using 2-1/2" diameter packaged explosives and timed to minimize rock movement onto the roadway.

All work was performed adjacent to active traffic lanes with traffic being stopped only for blasting. The project was completed on time and without incident.

### **Widening and Re-Alignment of Interstate 24/40**

#### **Owner: Tennessee Department of Transportation**

This project is located in downtown Nashville, TN near the intersection of I-24 and I-40. Blast designs contained presplit and production holes fired in the same blast using 3" diameter boreholes. Packaged cap sensitive emulsion explosives were used on this project with detonating sequences being selected to minimize rock movement, noise and vibration.

All work was performed adjacent to active traffic and with out incident for the sections under Charley Murphy's supervision and responsibility.